RF OUT jack:

Output connector for the RF modulator. Output from deck is converted to VHF signal and is fed to the VHF antenna terminals of any television set.

EXT POWER IN;

Power from portable battery or AC power adapter is fed into deck here. This connection is keyed; connector can be inserted in only one way.

CAM IN;

Camera cable connected here. This connection is keyed and camera connector can be inserted in only one way.

CAMERA/TV switch:

Set in CAM position when taping or playing back on television set. TV setting is for use with special monitor connecting cable and monitor.

TRACKING control:

Video head tracking is controlled by dialing this control. Do not force the dial. It shifts the control track pulse electronically in the playback mode to obtain tape interchangeability.

MIC jack:

External microphone can be plugged in here.

EARPHONE jack:

Earphone can be plugged in here for monitoring playback audio output.

BATTERY meter:

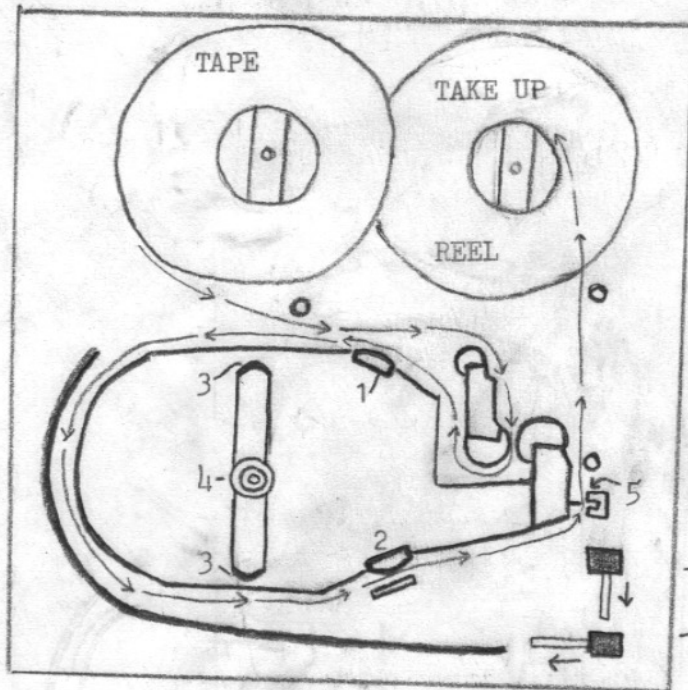
Indicates state of battery in recording and playback mode. Should be kept in white. Red indicates battery running down.

FUNCTION LEVER:

Select transport operation: forward, fast forward, stop, rewind.

RECORD LEVER:

Used to record video and audio. Is not used in playback.



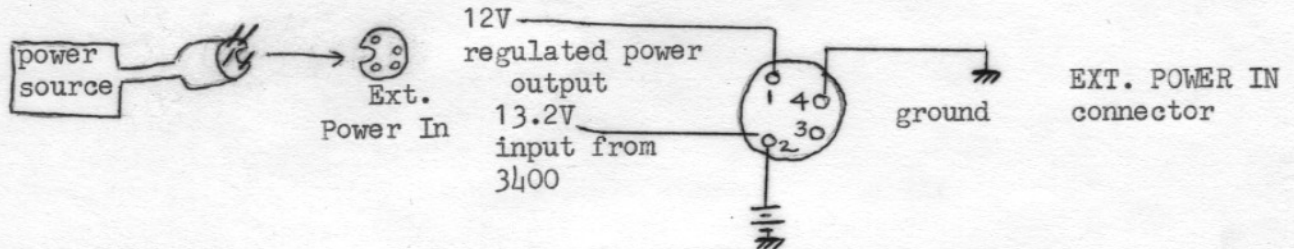
Tape path indicated by arrows and is also diagrammed on inside cover of deck. Be sure to watch position of tape relative to tape guides.

1. ERASE HEAD: Erases previously recorded material if deck is in record mode and there is no video or audio input. Can be seen from side.
  2. SOUND and SYNC HEADS: Records and plays back sound and lays down and reads sync track on tape. Can be seen from side. Should not be touched except to clean (see maintenance).
  3. VIDEO HEADS: Record and play back video signal on tape. These are sensitive and should not be touched except to clean (see maintenance). The heads can be seen from the side; head assembly is visible after cover is removed.
  4. SLIP RINGS: Take video signal from heads to internal electronics for recording and play back. The adjustment is critical and rings should not be touched except to clean (see maintenance). Can be seen only after cover is removed.
  5. Automatic CUT-OFF: Wire switch which will stop deck after tape has run through in either record or play back mode.
- STILL FRAME: Stop motion is obtained in playback mode only. Pull knob down in direction of arrow. Adjust tape by hand if picture is unstable. To return to normal speed, return knob to up position.
- SOUND DUB: New sound (from mike, radio, audio tape etc.) can be recorded onto prerecorded tape. Connect sound source to MIC in on deck. Play back tape to place where you want new sound to begin. Stop deck by putting function lever in STOP. Move SOUND DUB knob to left in direction of arrow and set function lever in FORWARD. When dub is complete, put function lever to STOP. Do not engage RECORD lever at any time. This will erase video from tape.



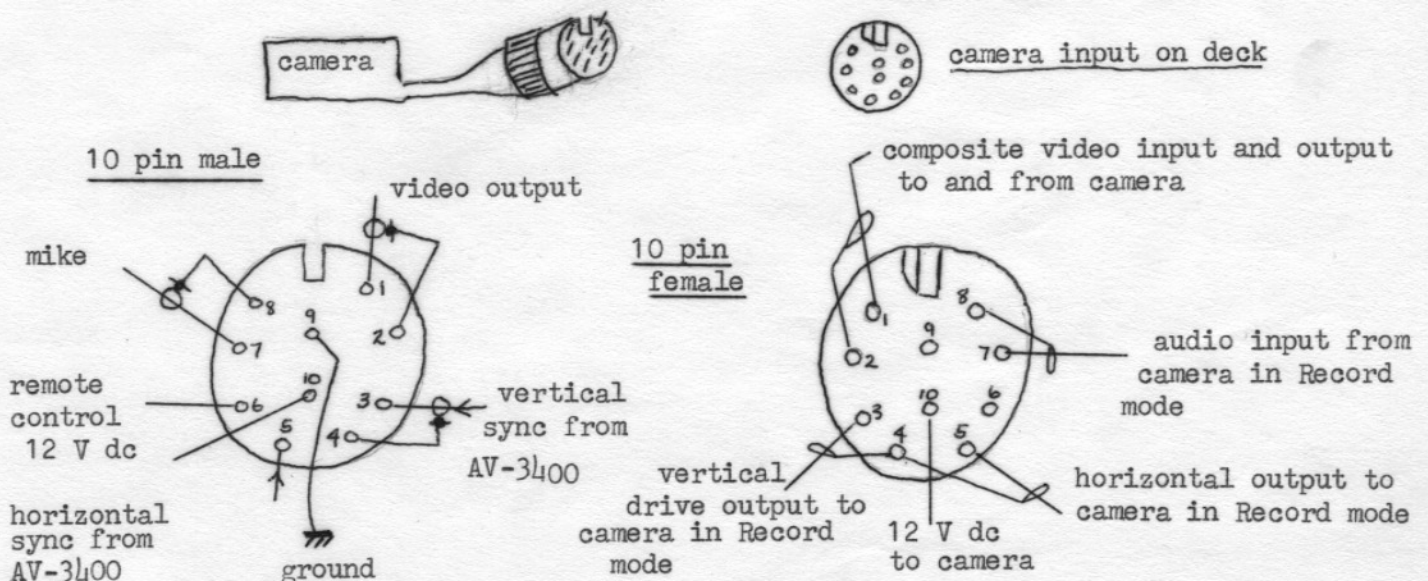
## ASSEMBLY: AV-3400

1. Put Function Lever in STOP position
2. Connect power source to EXT. POWER IN  
This connection is keyed. Be sure to line up keys on male and female ends before connecting. Push connector in straight; do not twist.



### POWER SOURCES:

1. Portable Battery:  
Should be recharged after each use; monitor battery meter while taping; when in red zone, recharge battery.  
To Connect: Unplug battery from wall outlet and connect keyed power cord to EXT. POWER IN.  
To Recharge: Disconnect from 3400 and plug into 110 AC wall outlet. Never connect battery to deck while battery is plugged into wall.
  2. AC Power Adapter: (non-portable system)  
Turn off-on switch to off  
Plug into 110 AC  
Plug keyed power cord into EXT. POWER IN.  
Turn adapter on.  
AC Power Adapter is used with AV-3400 WHILE it is plugged into wall outlet.
  3. Car battery:  
Insert cigarette lighter plug of car battery cord into cigarette lighter  
Plug keyed power cord into EXT. POWER IN.
3. Connect camera to deck with keyed camera cable (10 pin camera cable)  
This connection is also keyed; line up notch and push straight in. Twist only the outer ring; do not twist connection itself.  
If camera is CV camera: connect female end of cable to camera and male end to CAM on deck.  
If camera is AV camera: cable is permanently attached to camera; plug in male end to CAM on deck.  
10 pin camera cable carries both video and audio signals.



## ASSEMBLY: AV-3400 (cont.)

4. Confirm CAM/TV selector on deck is on CAM.
5. Tracking dial has no function during recording, only playback.
6. Connect microphone.
  - If camera is CV: connect male end of mic cord to female input on camera or to MIC IN on deck.
  - If camera is AV: there is a built-in microphone inside camera. Or connect male end of external mic cord to MIC IN on deck.
7. Thread tape:
  - Place tape supply reel on left and take-up reel on right side of deck.
  - Thread by referring to diagram on inside front cover of deck.
  - Confirm threading. Misthreading will result in poor quality tape.
8. Close cover of deck.

## RECORDING: AV-3400

1. Slide RECORD lever to left in direction of arrow. Hold to left and move FUNCTION lever from stop to FWD. When you release REC lever, it will stay in place.
2. You are now in the standby mode. You can see in the viewfinder to adjust lens and camera position for shooting, but you are not recording. Motor is on.
3. To record both video and audio push trigger or small button near lens mount on camera.
  - If camera is CV: keep trigger depressed while you are taping.
  - If camera is AV: depress trigger once to start recording and depress again to stop. Do not keep trigger depressed while taping.
4. If you are using a portable battery check level on BATTERY METER occasionally.
5. When not recording for long periods of time turn FUNCTION lever to STOP. This prevents unnecessary wear on video heads.
6. When tape has run through the AUTO Cut Off switch will cause viewfinder to go black. Rewind tape by moving FUNCTION lever from FWD to STOP. to REW slowly. Rethread tape from right to left, with recorded tape on right and empty reel on left. Move FUNCTION lever to REW.

**BURNS:** Do not point any video camera at the sun or other source of bright light at any time, even when camera is off or not connected to deck. This will burn vidicon tube inside camera. A burn appears as a dark spot on the lens which remains in the same position. It can be most easily seen if you stop down the lens. If a vidicon tube is burned it usually has to be replaced.

**TESTS:** Make a short test tape on the deck and play it back immediately to be sure deck is functioning properly.

**SHOTS:** Avoid excessively short shots. Each time the tape is stopped and restarted there is interference in the recording for a short period. It is not possible to edit sections of tape without at least 6 seconds of lead.

## VIEWING TAPE: AV-3400

Through the Camera:

1. Connect power source to deck at EXT. POWER IN.



VIEWING TAPE: AV-3400 (cont.)

2. Connect camera with camera cable to CAM on deck.
3. Confirm CAM setting on TV/CAM
4. Thread tape and confirm threading.
5. Move function lever from STOP to FWD.  
Do not move REC lever or tape will be erased.
6. Tape will play back in viewfinder of camera. (video only)
7. To hear audio, connect earphone to EARPHONE input on deck.

Through any Television Set:

1. Same as above
2. Omit
3. Same as above
4. Same as above
5. Connect RF Converter: jack end of cable is put into RF OUT on back of deck  
antenna wire is connected to VHF antenna leads on TV  
set ANT/VTR switch on selector to VTR  
turn channel on set to 3 or 4
6. Follow step 5 above and fine tune TV set.
7. There is no need for earphone. Sound will be heard on TV set.

FAST FORWARD: To proceed from earlier section of tape to later section without viewing entire section between move FUNCTION lever from FWD to FF.

To stop FF speed and play at normal speed, move FUNCTION lever from FF to STOP. Pause to let motor and heads stop. Put in FWD.

REWIND: leave prerecorded tape on right reel after shooting completed.  
thread tape from right to left following diagram. Do not go directly from one reel to the other.  
put function lever from STOP to REW.

Do not move function lever from one mode to another without pausing.  
Tape will stretch and make it unplayable.  
Heads should slow down or stop completely before changing modes.

If tape has noise in it when it is played back:  
adjust television set  
adjust TRACKING CONTROL: do not force or push in dial.

You can connect a Television set to the deck while you are recording the tape by connecting the RF converter as above.

## PROBLEMS: AV-3400

Some of the problems indicated below are specific to portapack operation; others can occur in the operation of almost every kind of video set-up. Descriptions of various kinds of problems encountered during equipment usage and their possible causes cannot encompass every contingency. It is most helpful to develop a sense of continuity and approach the problem from a logical point of view. The audio and video information is received, processed and displayed; if there is a break at any point in this chain of sequences, a loss of continuity, the machines do not function. The break in continuity can often be determined by a logical process.

If machine does not function properly, first check that the equipment is assembled correctly.

### VIDEO/NO AUDIO

- microphone not plugged in
- mic input in camera not working
- mic input in deck not working
- mic not working
- mic cable not working
- camera cable not working
- audio heads dirty

### AUDIO/NO VIDEO

- camera not plugged into deck
- lens is closed or lens cap is on
- lens is stopped down too far or light level too low
- camera cable not working
- video heads dirty: on record video through the camera  
appears ok.  
on playback shows snow

### NO POWER

(motor does not turn  
on in forward mode)

- problem in power supply:
  - portable: battery not charged
  - fuse in battery is blown
  - power cord from battery is broken
  - power input on deck is broken causing power  
transistor to blow
  - AC adapter: not plugged in or turned off
  - power cord from adapter is broken
  - power input on deck is broken
- 3 A fuse inside deck is broken

### SNOW/NOISE

on playback

video heads are dirty (one or both)

### JUMPY PICTURE

on record

- TV/CAM switch not on CAM
- camera cable, battery connection or RF jack or antenna  
leads are loose or broken



PROBLEMS: AV-3400 (cont.)

JUMPY PICTURE  
on playback

TV needs adjustment  
RF is loose or broken  
camera cable not functioning (if playback is in camera)

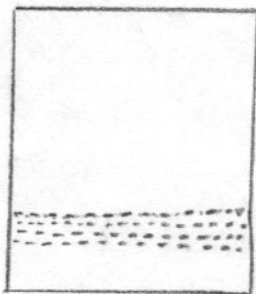
PULSES OR BARS

battery level low (audio speed may not be normal on playback)  
deck misthreaded on record or playback  
camera or power cables or inputs not working

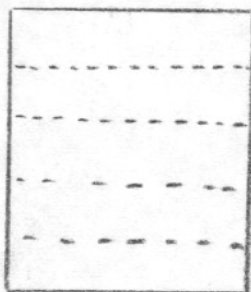
LINES/NOISE

slip rings dirty (dark intermittent lines may appear and may stay in one place on playback)  
TV not adjusted or RF not working (may also appear as moire patterns on screen)  
tracking needs adjustment

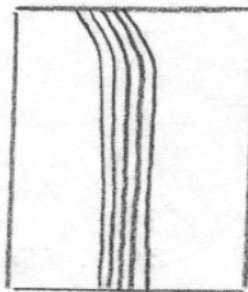
Learn to use a meter for continuity check.



tracking problem;  
use tracking control  
to adjust image on  
playback



slip rings dirty



skew; is no skew control  
on AV-3400.

## MAINTENANCE: AV-3400

Maintenance suggestions are applicable to equipment other than the portapack.

Keep machines clean and free of dust. Keep covers on if possible while using and replace after use. Avoid excessive handling of tape.

Avoid mechanical shock to cameras, decks, and lenses.

Avoid bending, stepping on and pulling cables and connectors; internal wires break easily

Do not place decks, cameras or prerecorded tapes near magnetic fields.

Do not point camera at the sun or directly at any source of bright light, including reflected light.

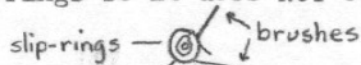
### CLEANING VIDEO HEADS

1. Do not attempt unless you know how. Heads break easily.
2. It is not necessary to remove outside cover to clean both heads.
3. Use tape recording cleaning fluid or spray cleaner and proper applicator.  
It is best to avoid using alcohol, Q-Tips. Do not use anything hard.  
Avoid touching heads with fingers.
4. STOP DECK. DO NOT ATTEMPT to clean while heads are moving.
5. Move one head to front with applicator  
Clean head tip with applicator dipped in fluid.  
Use a HORIZONTAL motion. Do not rub applicator up and down.  
Do not use pressure.  
Use a magnifying glass to see head is clean  
Repeat on other head.

### CLEANING SLIP-RINGS

1. Stop deck
2. Remove cover and upper drum cover
3. Apply fluid to rings with applicator and turn on motor for about 10 secs.
4. Check to see if noise disappears.
5. If noise persists:

Position applicator on slip rings so it does NOT contact brushes



Turn on motor and lightly hold applicator in place for several seconds.

6. Do Not move brushes at any time.

### ERASE and AUDIO/SYNC HEADS

1. Clean same as video heads.
2. Deck is off
3. Use HORIZONTAL motion with applicator.



## LENSES

lenses for Sony 1/2" cameras are "C" mount lenses. Lenses from 35 mm and other cameras can be used if you have the proper adapter and they do not hit the vidicon tube.

lenses should be cleaned only with lens tissue or lens cleaner.

when putting lens on camera lens and lens mount should be carefully lined up and turned gently to avoid stripping the threads.

### zoom lenses:

are standard for portapack cameras

can be used on the studio cameras

if you choose to use a lens other than the zoom lens on the portapack camera be sure lens fits the camera properly without hitting the vidicon which is located just inside the lens mount.

the length of the protrusion behind the mounting threads determines whether it can be safely used with the portapack cameras without damaging the vidicon. (see drawing below)

if lens has a close setting (marked "C" on the f-stop ring) be sure lens is in this position when camera is not in use. This protects vidicon from burns.

### controls on zoom lens:

1. f-stop: controls amount of light coming into camera
2. zoom control: varies field from wide angle to tight angle
3. focus ring

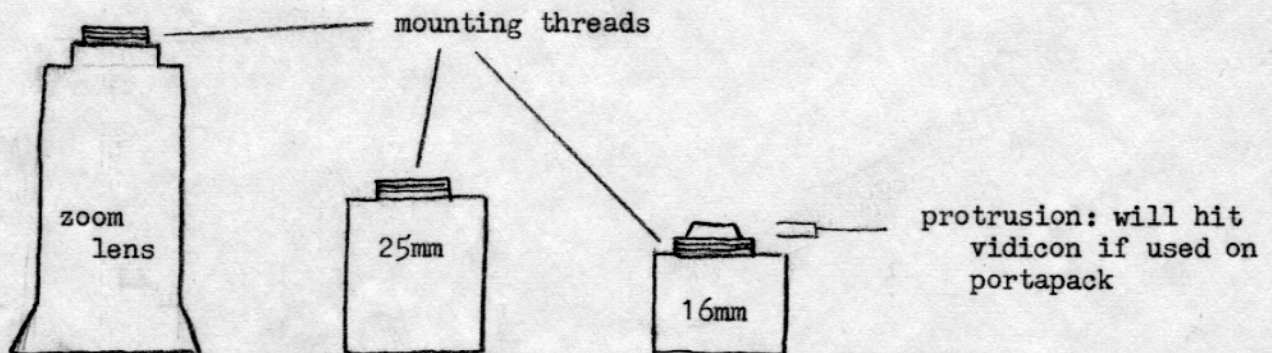
### controls on 16mm and 25 mm

1. f-stop
2. focus

### to focus zoom lens and retain focus through zoom:

1. zoom in on object
2. focus lens
3. focus should hold through zoom out

When changing lenses: do not touch vidicon. When cleaning vidicon, use lens paper and do not push in.



## VIDEOTAPE

### Specifications:

1/2" refers to width of tape  
tape travels at  $7\frac{1}{2}$  inches per second  
AV-3400 will accomodate a 20 minute or 30 minute reel  
playback decks will take 20, 30 minute and 1 hour reels.

### RECORDING:

can be recorded on ONE side only  
shiny side is side on which recording is made  
shiny side should always be facing in toward the center of the reel  
dull side is always on the outside

confirm that tape is rewound before threading on deck to make recording or play back.  
put tape with brand name up, facing you.  
if tape is coming down off left side it can be recorded on or played back.



if tape is coming down off right side it must be rewound before using.



tape to be used in either recording or playing back is always placed on the left side of deck, take-up reel on right.

### ERASING:

tape can be used more than once  
to erase:

1. use bulk eraser: erases entire tape in about 30 seconds
2. use AV-3400 or playback deck: put deck in RECORD mode without any video or audio input. This is a real-time process: it takes as long to erase tape as it does to play the tape at normal speed.
3. record over a tape that has already been recorded on. As new information is recorded over the old, the old information is erased.

Tape should be kept clean and free of dust and grease which will cause drop-out and dirty heads. Do not handle tape excessively. Keep in box when not in use.

DROP-OUT is caused by dust and appears as random dots on the screen when playing back tape. You will not see drop-out while recording.

There is no effective way of cleaning a tape if it has become dirty.

Avoid stretching or crinkling tape: this will cause picture on playback to be irregular for the space of the stretch. There is no way of removing a stretch.

Do not use computer tape on video machines.



## Cables

### Video

UHF coax



push straight in  
screw down outer ring only

BNC



push in and turn so that  
cut area fits into connection

6 pin camera cable



connection is keyed  
line up keys and push straight  
in. do not turn.  
also carries sync.

### Audio

Mini jack



RCA jack



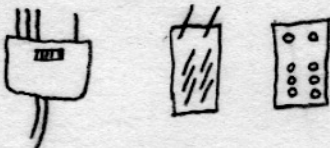
Phone or Banana jack



all connections push straight in

### Video and Audio

8 pin connector



connection is keyed. two top pins  
are farther apart than bottom 6  
pins. line up pins and slide in.

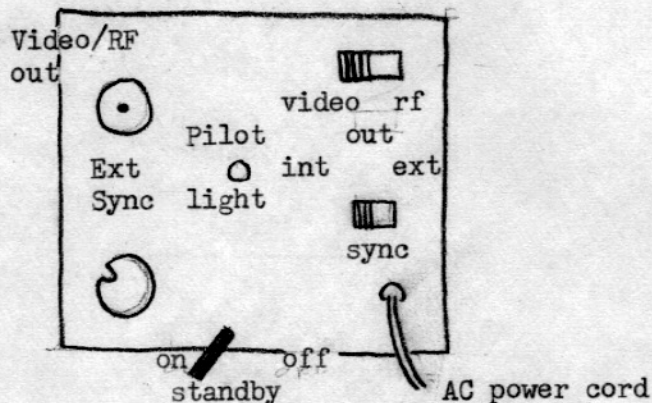
10 pin camera cable



connection is keyed. pin at top  
must be lined up to fit in slot.  
carries sync and power.

If connection is keyed this indicates that connector can be put in in only one way.  
If this is not done and connection is forced, damage may result.

# STUDIO CAMERA AVC-3200



Video/RF Out:	Accepts UHF coax cable; can be connected to AV-5000 or Panasonic NV 3130
Ext. Sync:	Accepts 6 pin camera cable to deck or SEG, or Video Synthesizer
On-Off:	Turns camera on and off. In Off position, shutter is closed.
Video/RF Switch:	Select appropriate setting for use equipment
Int/Ext.:	Select appropriate setting.
AC Power Cord:	Plug into wall outlet for power to camera.

## Use of Studio Camera with Recording Deck:

If using 6 pin camera input:

Sync is EXT  
Video/RF is on Video

If SYNC is improperly set:  
may appear as vertical roll  
or have diagonal lines

If using UHF coax cable:

Sync is INT.  
Video/RF is on Video

If Video/RF is improperly set:  
may have no picture

Lenses: Can use 16, 25mm and zoom lens

Tripod mount is on bottom of camera

Viewfinder: Do not force connection, pins break easily. Slip catch at end and push down.

To operate:

1. Mount viewfinder on camera if desired.
2. Plug camera into AC outlet
3. Set Power switch to Standby. Pilot light will go on.
4. Allow camera to warm up for about 30 seconds, then switch to On position
5. Confirm proper Sync selection and Video/RF switch.
6. Adjust lens.

Do not point this camera at the sun or source of bright light.

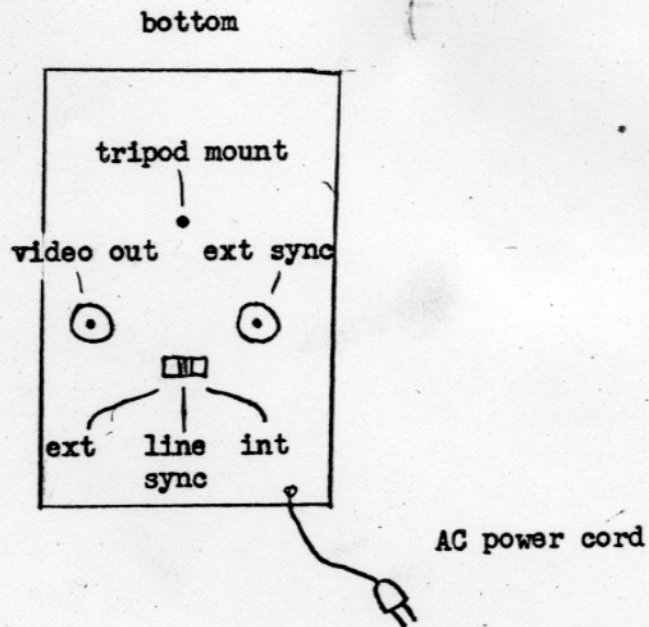
This will burn the vidicon.

When camera is not in use, make sure Switch is in Off position. This closes the shutter and prevents light from entering.

Avoid rough handling and mechanical shock to camera, viewfinder and lens.



STUDIO CAMERA UC-1 (Singer)



On/Off

Turns camera on and off. Located at back of camera. Shutter does Not close when camera is off; please replace body cap when camera is off or not in use. Plug into 110 AC

AC power cord

Video Out

Female UHF coax output. Takes video signal from camera to deck or monitor.

Ext. Sync

UHF coax input. Provides camera with sync from source outside camera.

Sync switch

Options are: 1. External sync 2. Line sync 3. Internal sync. See below for proper settings.

There is no viewfinder on this camera.

Use:

1. Plug AC cord into wall outlet and turn power switch on.
2. Connection to monitor or recording deck:
  1. UHF coax from Video Out to Video In of monitor or deck.
  2. Sync switch on Line sync
  3. External sync input not used
3. Connection to SEG (modification with Jones keyer) or other multiple camera system:
  1. UHF coax from Video Out to Video Input of SEG
  2. UHF coax from Ext sync to Sync Input of SEG
  3. Sync switch on Ext sync; sync is provided by SEG

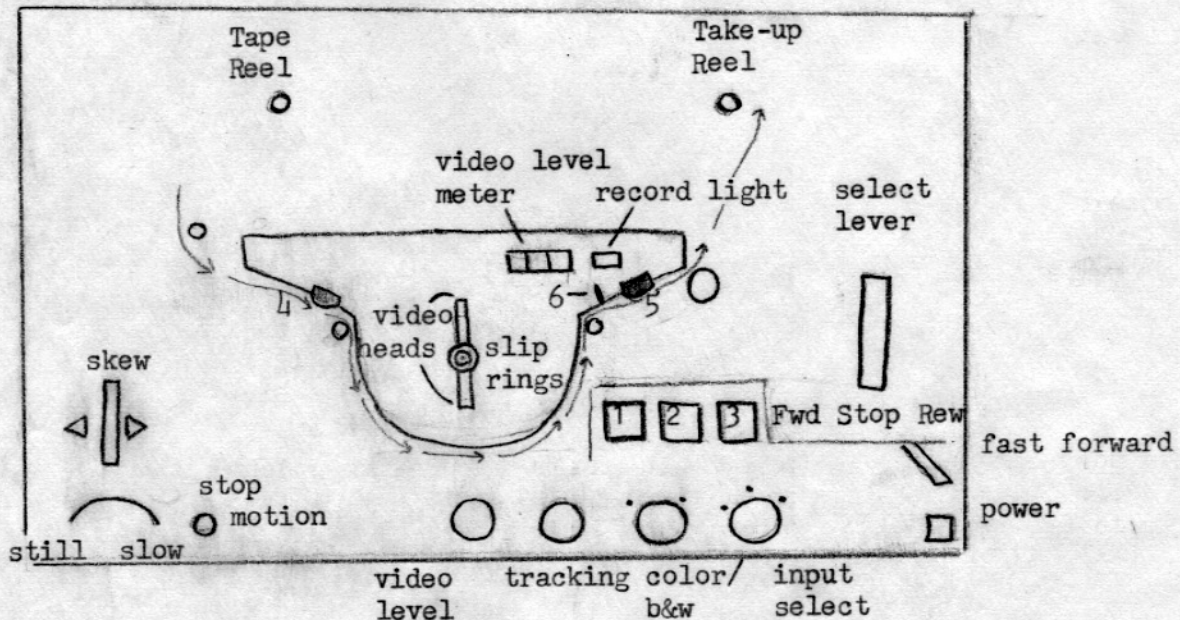
Lenses: C mount

Tripod mount is on bottom of camera.

Do not adjust scene, focus or beam.

Do not point this camera at the sun or any source of bright light. This will burn vidicon.

Avoid rough handling and mechanical shock.

**Stop motion:**

Push down to activate. As dial is turned in direction of "still", tape in playback mode will play in slow motion. If dial is turned to left completely, tape will be still framed. Push again to resume normal speed.

**Skew:****Video level:****Tracking:****Color/B&W:****Input Select:****Power:****Select Lever:****Fast Forward:****Record light:****1. Record button:****2. Sound dub:****3. Edit:****Video heads:****Slip rings:****4. Erase head:****5. Audio and Sync Heads:****6. Automatic Cut Off Switch**

TV position: video and audio inputs from 8 pin TV connector

Line position: video input from Video In connector; audio input from Mic In or Aux. In.

Camera position: video input from 6 pin Camera; audio input from Mic In or Aux In

Video output is always supplied to the 8 pin connector (TV) and Video Out.

Adjusts tape tension for optimum picture on playback. Must be adjusted during recording. Keep level on video level meter in blue area. Does not function on playback. Slight adjustment on playback may rid tape of tracking problem. Select appropriate adjustment for recording and playback. Selects Line, Camera or TV input. See below. Down turns deck on, up turns deck power off. Forward for recording and playing back. Rew for rewinding tape.

While Select lever is in Fwd. mode, move FFwd lever to left and let it return and tape will play in fast forward. To return to normal speed, turn lever to stop and then to Fwd. Light is on only when recording.

To record: Push button down and hold while moving select lever from Stop to Fwd. Then release and button will stay down. Do not push this down while you are playing back a tape.

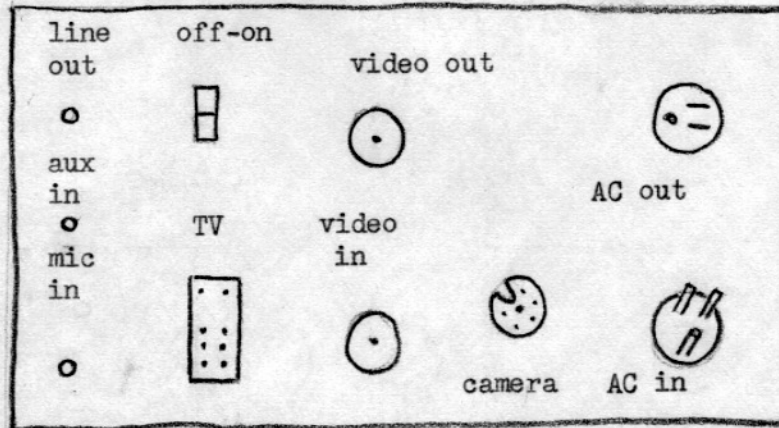
To make dub: push down only sound dub button at appropriate place on tape to record new sound over prerecorded tape.

Used when editing with two AV-5000.

Similar to heads on AV-3400

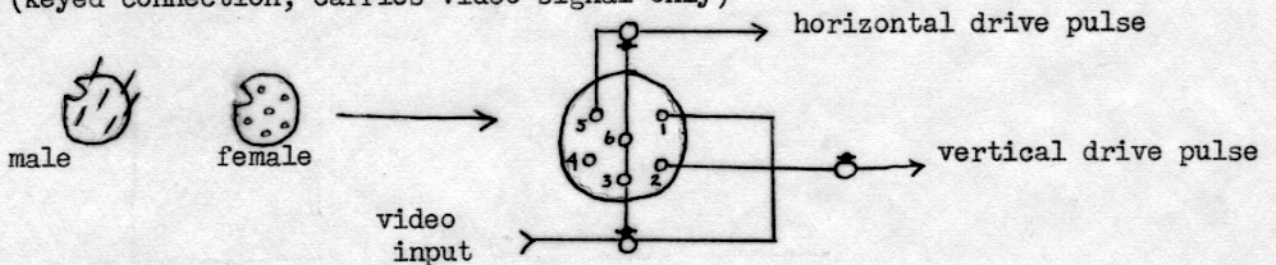
Similar to those on AV-3400



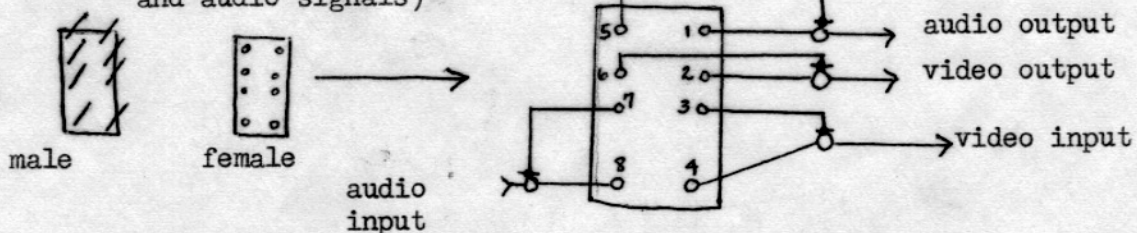


- Line Out:** Takes sound out of deck into monitor, speaker or mike mixer. Connect with mini plug.
- Aux In:** Plug other sound sources (phonograph, tape recorder etc.) into recording deck to record it onto videotape. Connect with mini plug.
- Mic In:** Plug mike in to record sound while taping or doing sound dub. Connect with mini plug.
- Off-On:** Turns motor on and off. If you are monitoring the camera input but not ready to record, turn deck off to save wear on video heads.
- TV:** 8 pin connector carries both video and audio signals in one cord. Usually connects deck to monitor. Carries signals to and from.
- Video out:** Carries video signal out of deck with UHF coax cable.
- Video in:** Carries video signal into deck with UHF coax cable.
- Camera:** Connect 6 pin camera cable into deck
- AC out:** This acts like wall outlet. Can plug camera or monitor in here.
- AC in:** Deck must be plugged into wall outlet for power.

6 pin (keyed connection; carries video signal only)



8 pin (keyed connection; carries both video and audio signals)





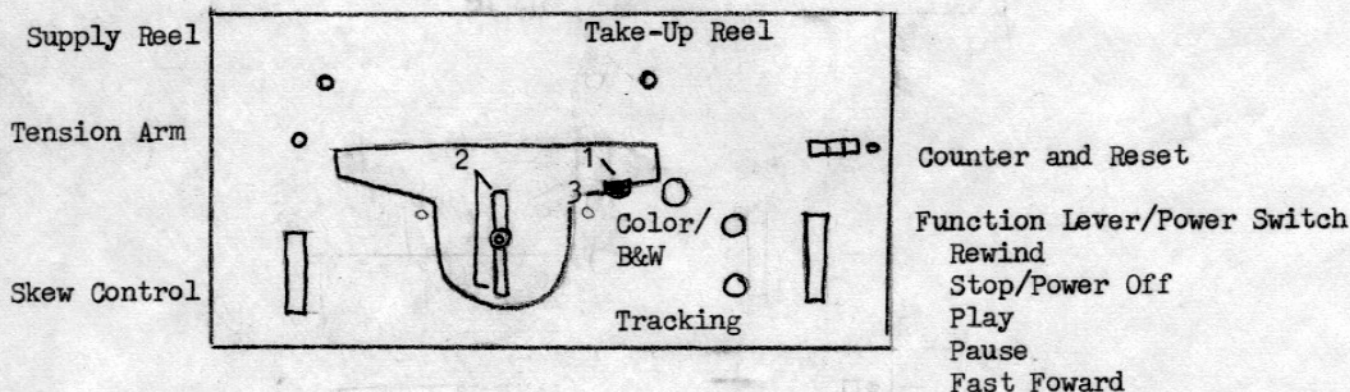
**Skew Control:**

Image distortion on playback can be eliminated. If picture's upper portion is distorted toward left, move lever slowly to right. If distortion is toward right, turn lever slowly to left.

**Tracking Control:**

By adjustment you can eliminate noise in playback. Leave on Fix at all other times.

**Color/B&W**

Select appropriate setting for tape.

**1. Audio/Sync Heads:**

Reads sound and sync track for playback. Can be cleaned as with AV-3400, and AV-5000.

**2. Video Heads:**

Reads picture for playback. Can be cleaned in the SAME way as all video heads.

**3. Automatic Cut-Off:**

Will automatically shut off motor when tape is rewound onto supply reel or wound onto take-up reel. Turn Function Lever to Stop position when motor is shut off with this.

**Function Lever:**

Stop: Tape stops and power is off.

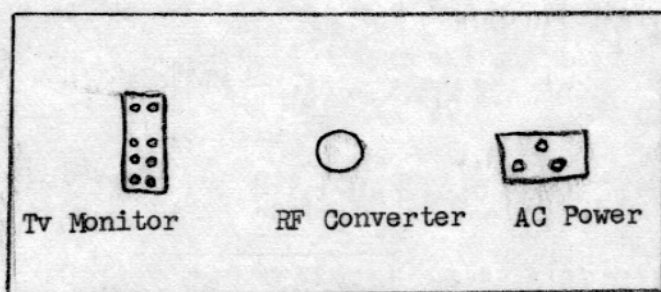
Rew: Rewinds tape rapidly. Put in stop position after tape is rewound completely.

F. Fwd.: Tape runs rapidly

Pause: for reproducing still images in playback.

Do Not move lever rapidly from one position to another.

Pause at each mode to give time for tape to start and stop smoothly.

PANASONIC 3110 Rear**TV Monitor:**

Use 8 pin cable for connecting deck to monitor

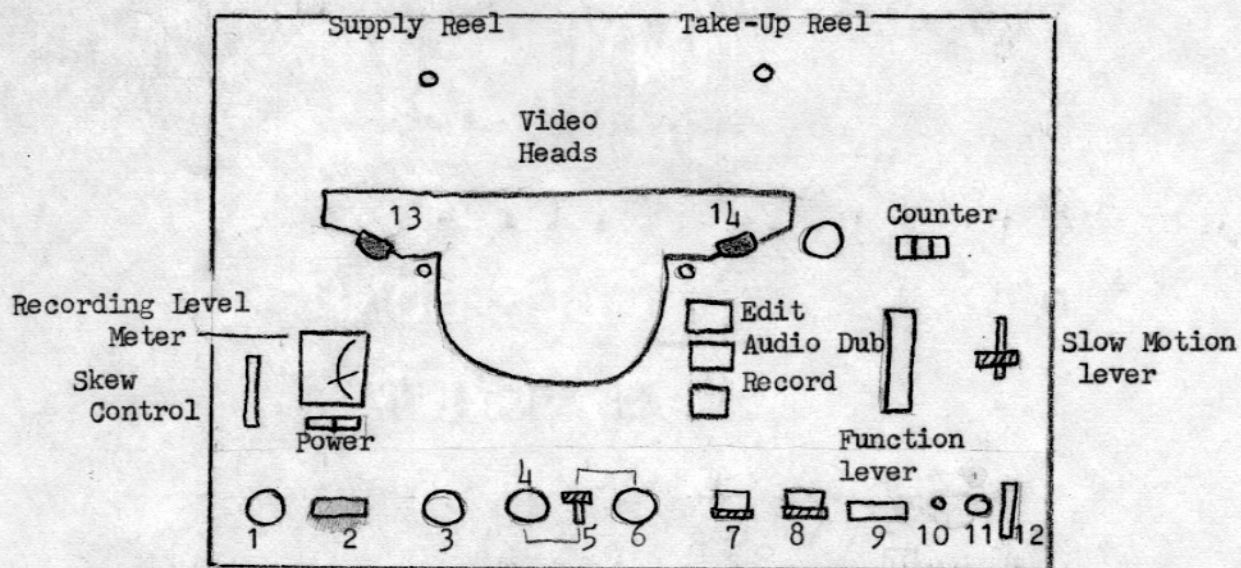
**RF Converter:**

For connection with RF Converter when playing back on regular TV receiver

**AC Power IN:**

Cord supplies power to deck.

\*\* modification: Video Out: UHF coax connection  
Audio Out: Mini connection



With the Panasonic 3130 deck, you can both record and playback tapes in color and black and white.

With the Panasonic 3110, you can playback tapes only, in color or black and white

The color signal from the 3130 is not compatible with the color signal from the AV-5000. A color tape made on a Panasonic 3130 will not play in color on an AV-5000, and a color tape made on an AV-5000 will not play back in color on a Panasonic 3130 or 3110.

The black and white signals of the AV-3400 and 5000 are compatible with those of the Panasonic decks. A black and white tape will play on either deck.

Power:

Turns deck on and off.

Counter:

Indicates relative point of the tape; used for reference on record and playback.

Skew Control:

Image distortion on playback can be adjusted out of picture. If picture is pulled left, move Skew to right. If picture is puller to right, move lever to left. To slow picture on playback, turn Function Lever to Forward, then move Slow Motion Lever in direction of arrows until it locks.

Slow Motion Lever:

1. Slow Motion Speed Control:

Controls the speed of tape in slow motion mode. Speed variable from stop position to  $1/4$  time the normal speed.

2. Tracking Meter:

Indicates when tracking control has been adjusted properly-maximum needle deflection.

3. Tracking Control:

Adjustment can eliminate noise in picture on playback. Should be in Fix position, when not used.

4. Audio Recording Level:

Controls audio recording level when making tape.

5. Recording Level Meter Selector:

Should peak just below red zone, as seen on Level Meter. If set on Video, Recording Level Meter will show video level during recording. If set on Audio, Meter will show audio level during recording.

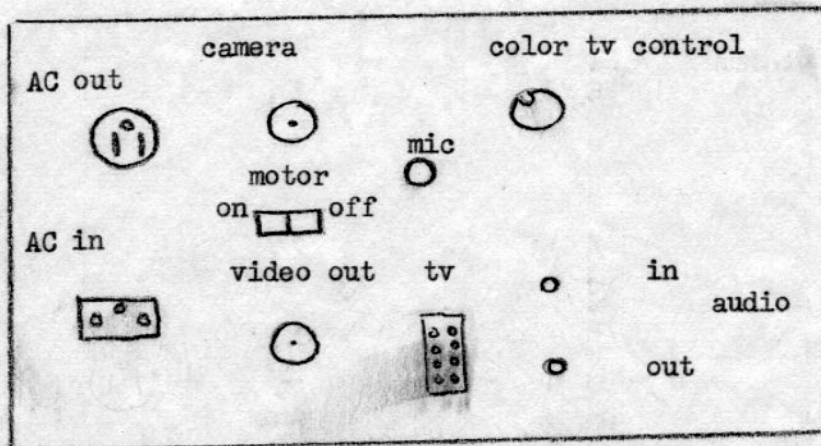
6. Video Recording Level: Recording Level Meter:

Controls video recording level when making tape. Shows Audio or video recording level.



7. TV-CAMERA Select: , If set on TV, a TV monitor is the recording source. If set on CAM, the Camera Input on the back of the deck is the recording source.
8. Color/B&W: Select appropriate setting for playback and recording.
9. Color Indicator Light: Lights when deck is in Color position.
10. Audio Switch: Used in editing. When on (red light on) you can retain the original audio track and insert new video material.
11. Mode Selector: Used in editing; Normal position is used when recording and playing back tape. Insert and Assembly function in editing. See editing.
12. Editing Light: Lights when deck is in Insert or Assembly Mode, and when video signal comes into Camera In from camera, TV monitor or VTR.
13. Erase Head: Erases prerecorded information.
14. Audio/Sync heads: Record and read audio and sync information.
- Video Heads: Read and record video information.
- Function Lever: Stop, Play, Pause, Fast Forward positions. DO NOT move lever rapidly from one position to another. Pause between modes to allow tape to start and stop smoothly.
- Edit: To edit tape (including picture and sound) push button down. For more information, see editing.
- Audio Dub: To replace original audio recording with another. See editing.
- Record: To start recording, turn function lever to play while keeping record button depressed.

Panasonic 3130 Rear



- AC Out: Used to supply power to camera, monitor
- AC In: Connects deck to wall outlet for power
- Camera Input: Accepts video signal through UHF coax cable from camera or another deck.
- Video Out: Takes video signal out of deck through UHF coax cable into monitor.
- Motor: Turns motor on and off. Please turn switch OFF while setting up and monitoring prior to recording. This saves excess wear on the heads.



Panasonic 3130      Rear

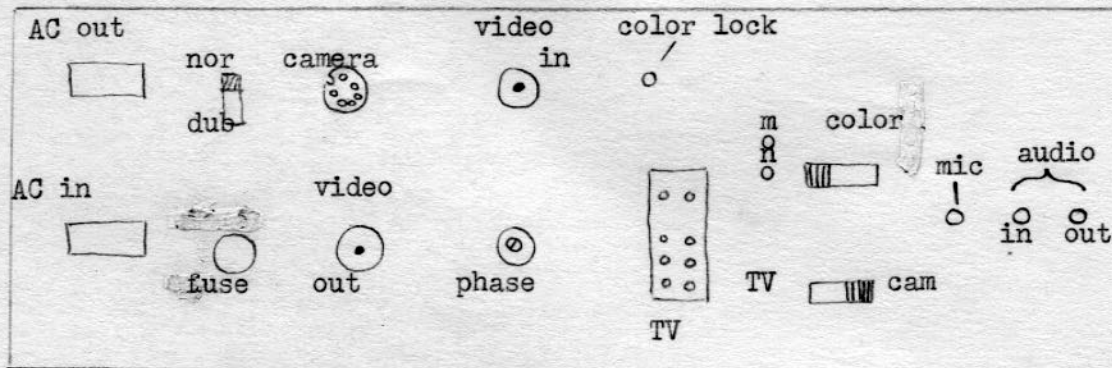
Mic: Accepts audio from mike through Phone plug.  
TV: Accepts 8 pin connection to monitor or another deck  
Audio In: For direct recording of sound from auxillary source  
such as audio tape recorded, record player, radio etc.  
BE SURE to keep volume of other sound source at LOW  
level, since overdriving may damage the preamp circuit.  
Audio Out: Takes sound out of deck and can be connected with ex-  
ternal speaker.  
Color TV Control: NOTE: both Audio In and Audio Out are connected with RCA plugs.  
Uses special cable to connect deck with Panasonic monitor.

RECORDING:  
One Camera and Deck

AV-5000

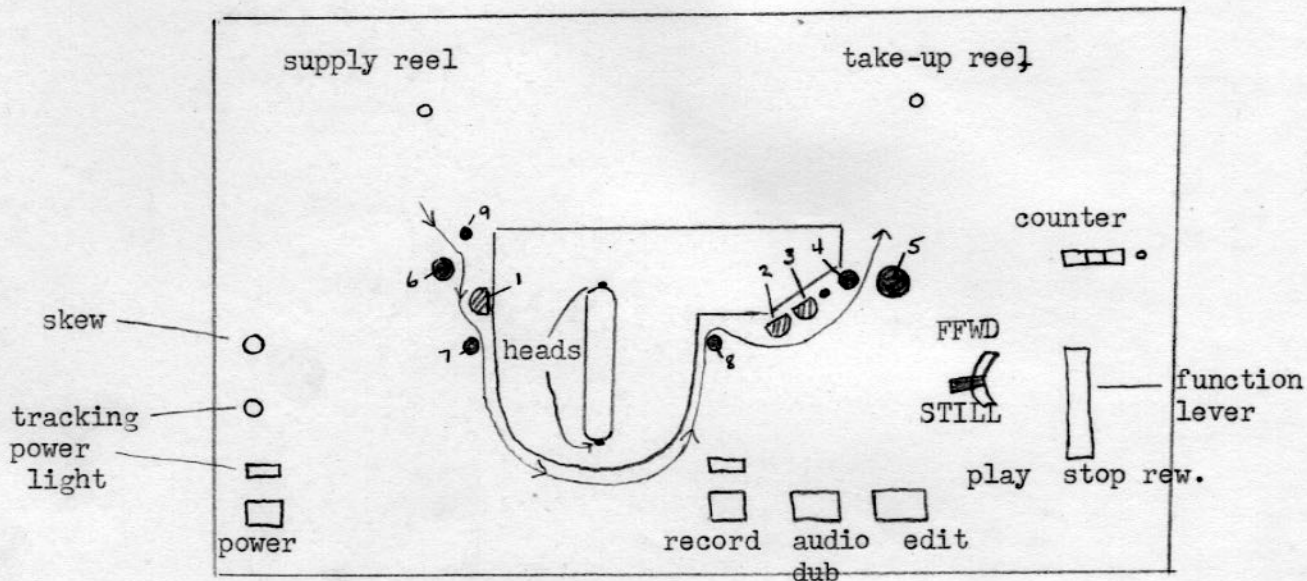
NV-3130

1. Mount studio camera on tripod  
May mount viewfinder if desired
  2. Plug camera, deck and monitor into  
wall outlets for power
  3. Using UHF coax cable, connect camera  
to VIDEO IN
  4. Set Camera controls on INT and Video
  5. Connect deck to monitor from VIDEO OUT  
to proper connection for monitor
  6. Plug mike to MIC IN
  7. Turn on camera, deck, and monitor
  8. Put INPUT SELECT on LINE  
Select COLOR or BLACK/WHITE
  9. If you have not used 8 pin from  
deck to monitor, connect external  
speaker from LINE OUT, using mini jack
  10. Depress RECORD button and turn off head  
motor switch in back of deck
  11. Check Video Level; adjust aperture  
and focus on camera
- Using UHF coax cable, connect camera  
to CAMERA
- Plug mike to MIC
- Set TV-CAM on CAMERA  
Select COLOR or BLACK/WHITE  
Put MODE SELECTOR on NORMAL
- Connect from AUDIO OUT, using RCA plug
- Check Video and Audio Levels; adjust  
camera aperture and focus



- AC in: Supplies power to the deck with modified power cord.
- AC out: Will supply power to camera, monitor etc. when AC in is connected.
- Fuse:
- Normal/Dub: Normal position for recording and playback. Editing is not recommended on this machine.
- Camera: 6 pin input for use with studio camera on External sync. or portapack camera and CMA (camera adapter)
- Video Out: Accepts UHF coax connection for carrying video out of deck to a monitor or another deck.
- Video In: Accepts UHF coax connection for carrying video signal into deck from a studio camera on Int. sync or from another deck.
- Phase: Please do not adjust. Controls position of head switching.
- Color lock: May have to be adjusted when playing back color tapes if colors are not correct.
- TV; Accepts 8 pin connection for connecting deck to monitor on playback or to another deck. This carries both video and audio out of deck. When used as input, for example recording off the air, deck must be on TV setting.
- Mono/Color: Select appropriate setting for recording and playback.
- TV/Cam: If set on Cam, video input can come from either the 6 pin camera input or the Video In. If set on TV the 8 pin TV is used as input.
- Mic: Microphone input here with mini connector.
- Audio In: Accepts auxilliary audio input from audio tape recorded, record player etc.
- Audio out: Takes audio from the deck into speaker.
- Both Audio in and out use mini connectors.





- Power:** When deck plugged in: down position-deck on; up position-deck off. When power button down, light above is on.
- Skew:** Adjusts tape tension for optimum picture on playback only. If image on playback pulls to right or left, adjust skew.
- Tracking:** Adjustment can eliminate noise in picture on playback only. When not needed should be in off position.
- Function lever:** Play, Stop and Rewind positions. Do Not move rapidly from one mode to another; pause and allow the heads to stop before changing modes. Rapid motion may stretch tape.
- Speed Select:** Fast Forward: used in playback only. To operate: push Speed Select up while deck is in play and tape will fast forward. To stop fast forward and return to normal speed, put function lever in Stop. Do Not force the Speed Select back to the middle position. Still: used in playback only. To operate: push down Speed Select and hold down. When released, tape returns to normal speed. Still is used only in play position in playback.
- Counter:** Gives relative positions on a tape.
- Play:** Position for playing back tape and recording a tape.
- Stop:** Deck is stopped; tape does not move.
- Rewind:** Tape rewinds from the take-up reel to the supply reel.
- Record Mode:** To start recording push Rec down and move Function Lever from Stop to Play. While Rec button down, light above is on.
- Audio Dub:** Used to replace original audio on a tape with a new audio track while retaining the original video. To operate, press down and move Function lever from Stop to Play.
- Edit:** Not recommended because deck does not consistently lock and not all edits will be clean; interference will be present occasionally between edits. Record and read information on the tape.
- Heads:**
1. Erase head: erases prerecorded information
  2. Audio head
  3. Audio and Control heads
  4. Capstan
  5. pinch roller
  - 6,7,8. Tape guides
  9. Tension pole



# VIEWING A TAPE

AV-5000

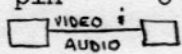
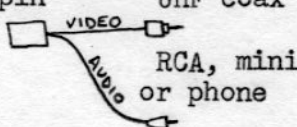

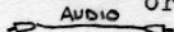
Panasonic 3110

Panasonic 3130

1. Plug deck, monitor and external speaker if used into 110 AC wall outlet.
 

same; deck requires 3110 power cord,

same; deck requires 3130 power cord.
2. Connect deck to monitor:
 

deck out	cable	monitor			
TV	8 pin 	8 pin	same		same
TV	8 pin 	UHF coax RCA, mini or phone	same applicable;		same
Video Out & Line Out	UHF coax  mini plug 	UHF coax mini, RCA or phone	not applicable; 3110 has 8 pin out only modification: Video Out and Audio Out (mini connector)		Video Out & Audio Out UHF coax RCA UHF coax RCA, mini or phone
3. Thread deck; diagram on inside front cover
4. Power:
 

a. Turn on monitor	a. Same	a. Same
b. Push power button down	b. On-Off function related to function lever	b. Turn power switch on
c. Confirm motor switch on back is on	c. Not applicable	c. Confirm motor switch on back is on.
5. Settings:
 

a. Color or B/W	a. Same	a. Same
b. Input select on Line	b. Not applicable	b. Select Cam
		c. Select Normal mode
6. Function Lever
 

Fast Forward: while lever in play, slide FFW bar to left and release. To stop FFD, stop deck.	Fast Forward: use FFW lever position	Fast Forward: use FFW lever position
Still Frame: push slow motion button down, move dial to left from slow to still. To resume normal speed, push button down again.	Still Frame: use lever on pause	Still Frame: use lever on Pause

## VIEWING (cont.)

### Skew Control

Adjusts picture on playback to left or right

Same

Same

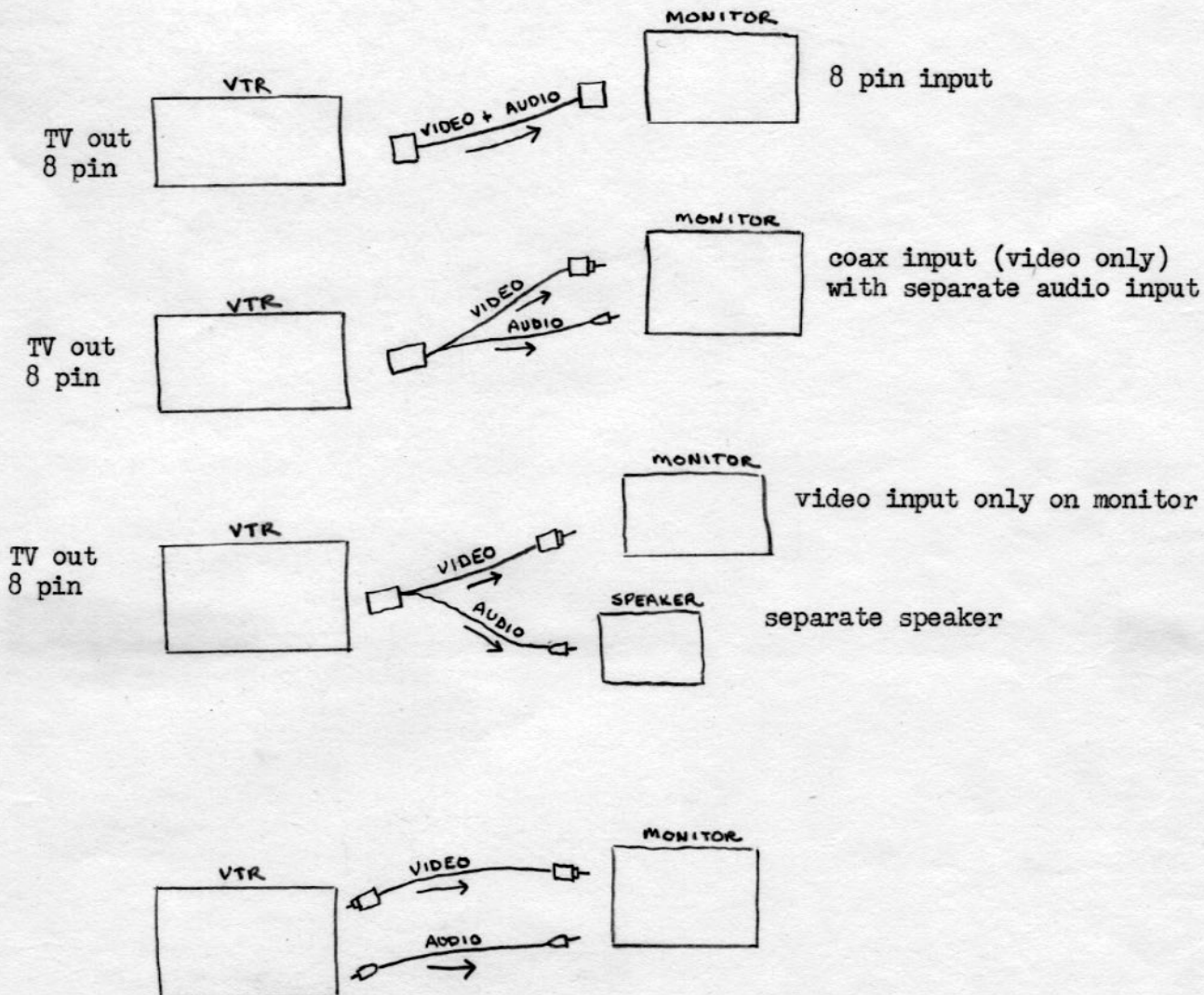
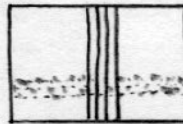


### Tracking Control

Eliminates noise in picture on playback. Tracking problem may occur if tape is recorded on one machine and played back on another machine

Same

Same



Video Out (AV-5000 and Panasonic 3130)  
Line Out (AV-5000) or  
Audio Out on Panasonic



## VIEWING A TAPE

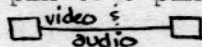
JVC FV-3500

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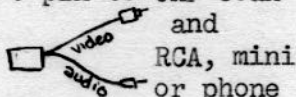
1. same; deck requires modified power cord

2. Connect deck to monitor

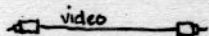
same TV 8 pin to 8 pin



same TV 8 pin to UHF coax  
and  
RCA, mini  
or phone



Video UHF coax to UHF coax  
Out



&

Audio Mini to RCA, mini or  
Out phone



3. Thread deck; diagram on inside front cover

4. Power:

- a. Turn on monitor
- b. Push power button down
- c. There is no motor switch on FV-3500

5. Settings:

- a. Color or B/W (mono)
- b. Select Cam
- c. Select Normal

6. Function Lever

Fast Forward:

while lever in play, push Speed Select lever up to Fast Forward position; it will remain up. To stop FFD, put Function lever in Stop and Speed Select will return to normal position. Do Not force Speed Select down.

Still Frame:

Put Speed Select down to Still while deck in Play position and hold. When released, Speed Select will return to normal position and deck will resume normal speed.

VIEWING (cont.)

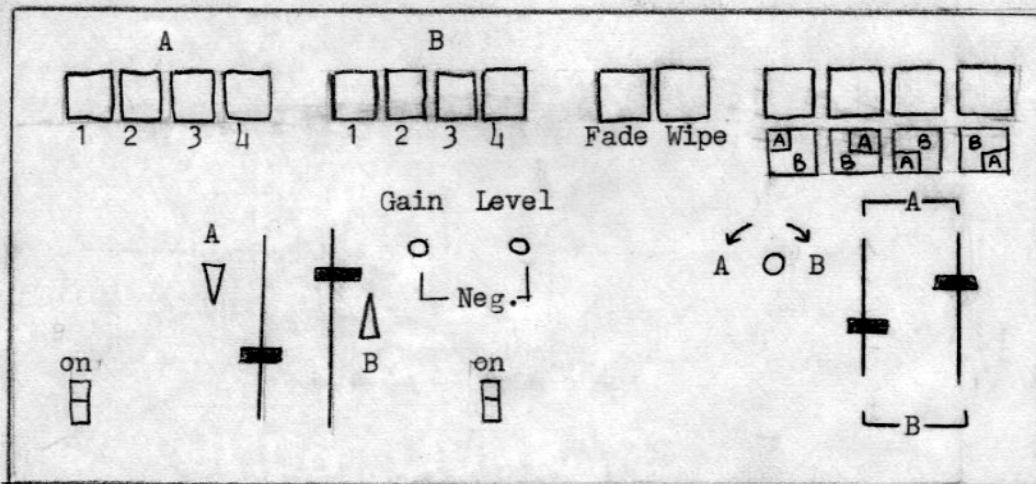
Skew Control

same

Tracking Control

same





- |                             |   |
|-----------------------------|---|
| 1. Power Switch;            | Turns SEG on and off  |
| 2. Channel A Control:       | Maximum level of A signal when lever is up; minimum when down.                        |
| 3. Channel B Control:       | Maximum level of B signal when lever is down; minimum when up.                        |
| 4. Neg. Gain Control:       | Adjusts contrast of negative picture.   |
| 5. Neg. On:                 | Inverts output of B channel to give negative picture                                  |
| 6. Neg. Level Control:      | Adjusts brightness of negative picture.   |
| 7. Horizontal Wipe Control: | Gives vertical split screen; adjustable between A and B                               |
| 8. Vertical Wipe Control:   | Gives horizontal split screen; adjustable between A and B.                            |
| 9. Channel A Select:        | Select camera input for A channel   |
| 10. Channel B Select:       | Select camera input for B channel   |
| 11. Fade/Wipe:              | Select fading (dissolve) or wiping (split-screen or corner insert)                    |
| 12. Level Control:          | Balances output level of A and B channels   |
| 13. Insert Selectors:       | Select the corner into which the A channel picture is put within the B channel field. |

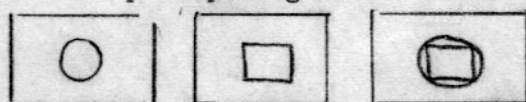
switching



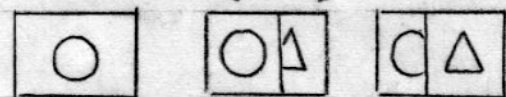
fading



superimposing



horizontal wipe



vertical wipe

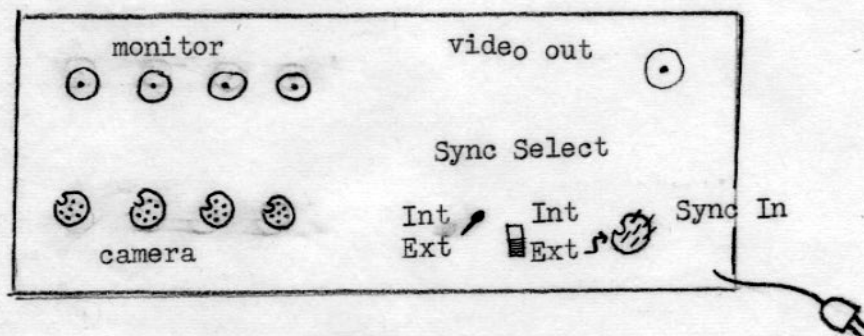


corner insert



negative





1. Monitor: UHF coax cable from output to monitor. Supplies video output signal to monitor for each camera. This enables you to monitor each camera image separately.
2. Camera: 6 pin camera cable from each camera to camera inputs. Camera input 1 must be connected.
3. Video Out: UHF coax cable supplies main video out to VTR.
4. Sync Selects: Set both switches on Int unless the Sync In is used.
5. Sync In: Accepts external sync signals through 6 pin cable. If Sync In is used, set both Sync Select switches on Ext.

### RECORDING

#### ASSEMBLY:

1. Mount cameras on tripods and attach viewfinders if desired. If portapack cameras are used, attach 10 pin camera cable to Camera Adapter.
2. Plug in cameras, camera adapters if used, monitors, SEG and VTR to 110 AC
3. Connect each camera to Camera input on SEG.  
use 6 pin camera cables from camera or camera adapter to Camera Input on SEG  
Camera input 1 on SEG must be used  
set studio camera controls on EXT and Video
4. Connect each monitor to corresponding camera.  
UHF coax from Monitor on SEG to appropriate connection for each monitor.  
Each camera will then have its own monitor.
5. Connect SEG to VTR:  
Video Out from SEG to Video In (AV-5000) or CAM (NV-3130) with UHF coax
6. Connect VTR to Main monitor:  
Video Out (AV-5000 and NV-3130) to appropriate connection for main monitor.  
Main monitor will show mix from SEG
7. Connect sound:  
Microphone to Mic In; mini jack for AV-5000 and phone plug for NV-3130  
Line Out to external speaker or monitor if monitor has audio input; mini jack for AV-5000 and RCA jack for NV-3130  
\* If you are using 8 pin out of deck to monitor this carries both video and audio signals, and you do not need to connect external speaker.
8. Turn on cameras, camera adapters, monitors, VTR and SEG. Turn OFF motor switch on back of deck until you are ready to record.
9. Set controls on AV-5000 or NV-3130:  
AV-5000: B/W, Line  
NV-3130: B/W, Camera, Normal mode.
10. Push down Record button on VTR with Record Lever in Stop position. All monitors should show corresponding cameras. Adjust cameras and Video Level on deck.



## SEG

To Operate:

### Recording

1. Thread tape. Threading diagram is on inside front cover.
2. Keep RECORD button down and move Function lever from Stop to Forward. Then remove finger from REC button.
3. To stop recording: move function lever from FWD to STOP.
4. To playback tape: move function lever from Stop to Fwd. Do not push REC button.

DO NOT move Function lever on either AV-5000 or NV-3130 rapidly from one position to another. Pause before moving from one mode to the next., to avoid stretching the tape.

### SWITCHING:

1. Set FADE/WIPE on SEG to Fade
2. To switch Channel A, set both Level Controls in UP  
To switch Channel B, set both Level Controls DOWN
3. Select desired input by pressing appropriate Channel a or B Selectors.

### FADING:

1. Set FADE/WIPE on FADE
2. Feed desired inputs to Channels A and B by pressing A and B Selectors
3. Both Level Controls UP: Channel A input is on main monitor  
As both Levels are brought DOWN picture dissolves from a input to B input
4. To dissolve Channel A to black: put A Level Control DOWN  
To dissolve B to black: set both Level Controls DOWN and move B only Up

### SUPERIMPOSING:

1. Set SEG on FADE
2. Select inputs by pressing A and B Channel Selectors
3. Set A Level Up; Set B Level DOWN

### HORIZONTAL WIPE

1. Set SEG on WIPE
2. Select inputs to A and B by depressing Selectors.
3. Press any one of the INSERT Selectors
4. Set Vertical Wiping Control DOWN
5. Move Wiping Control to position vertical dividing line between images.

### VERTICAL WIPE:

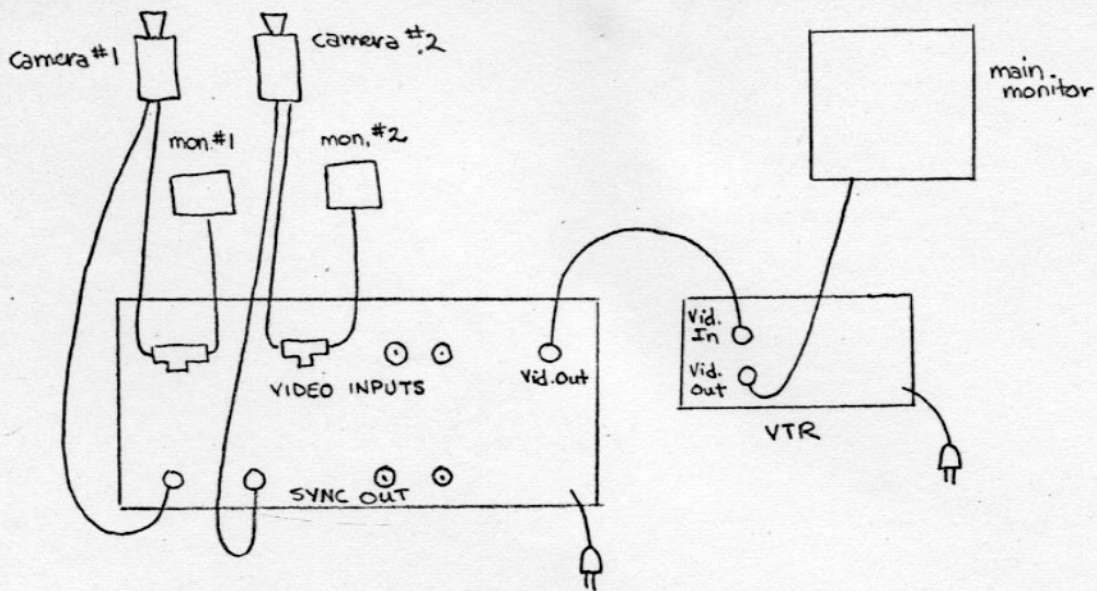
1. Set SEG on WIPE
2. Select inputs to A and B by depressing Selectors
3. Press any Insert Selector
4. Set Horizontal Wiping Control DOWN
5. Move Wiping Control to position horizontal dividing line

### CORNER INSERTS:

1. Set SEG on WIPE
2. Select inputs to A and B by depressing Selectors
3. Press desired insert selector according to figure
4. Use Wiping Controls to vary boundaries

### NEGATIVE

1. Select input on Channel B Selector
2. Turn NEG switch ON
3. Vary contrast of the negative picture by turning NEG GAIN
4. Vary brightness by turning NEG LEVEL
5. Proceed with any mode of operation



### Termination:

Improper termination appears on the monitor as a very high contrast image or a low contrast image or a ringing which appears as a slight double image on the edges.

#### To Terminate:

Any signal fed into a recording deck is terminated at the deck

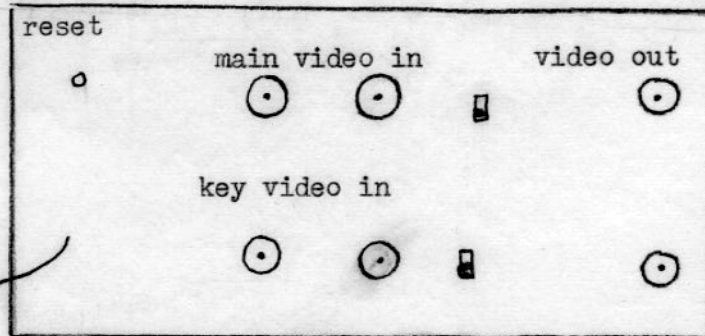
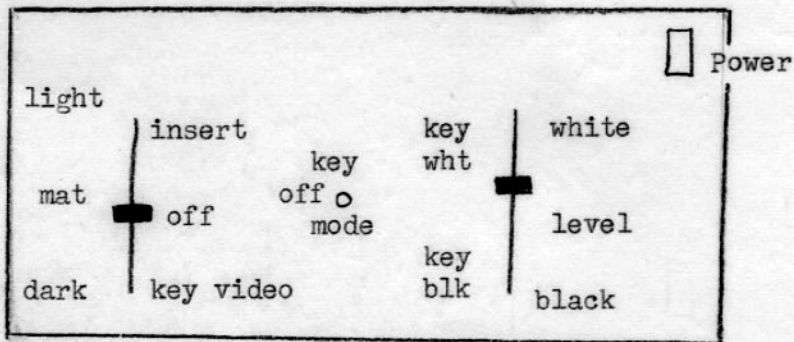
A video signal from a deck to a monitor should be terminated at the monitor

If you are bridging several monitors, only the last monitor should be terminated

Most monitors have a termination switch. To terminate the monitor, put the switch on 75 ohms.



## KEYER



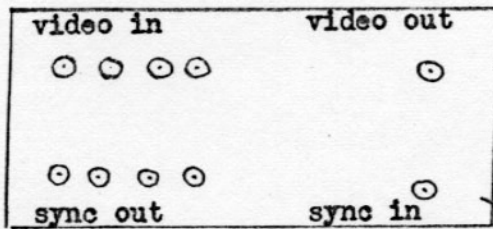
### ASSEMBLY: SEG and KEYER

1. Choose the camera which will be the key camera.  
All other cameras will be connected according to SEG assembly.  
Connect key camera to SEG with 6 pin camera cable.  
Connect Monitor out of SEG for the key camera to KEY VIDEO IN on Keyer; use UHF coax  
Connect the other KEY VIDEO IN on keyer to a monitor; this will monitor the video output of the camera.
2. Connect Video Out of SEG to Main Video In on Keyer; use UHF coax
3. Connect Video Out on Keyer to Video In on VTR.
4. Connect Video Out on VTR to main monitor.

In a keying process the light or dark areas of an image can be dropped out; into this light or dark area another image can be inserted. Because of the number of possibilities of image combinations, it is easiest to understand keying, insert and matting functions through actual use of the equipment.

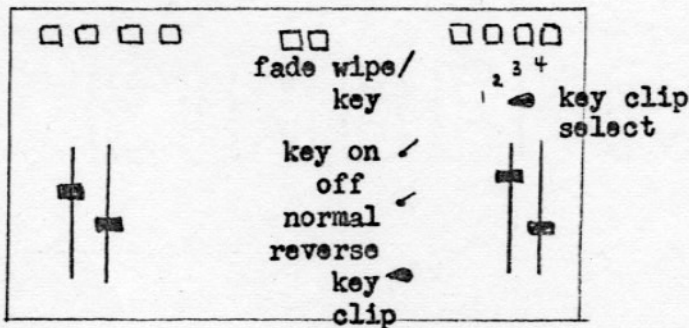
# SEG Modifications: with Jones Keyer

## Back



Video In: carries video signal from camera (video out) to SEG  
 Sync Out: carries sync from SEG to camera (external sync)  
 Video Out: carries video signal from SEG to record deck  
 Sync In: carries sync to SEG from external source.

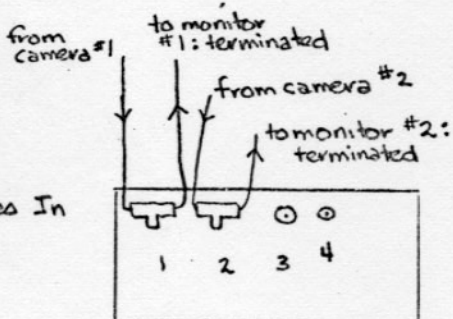
## Top



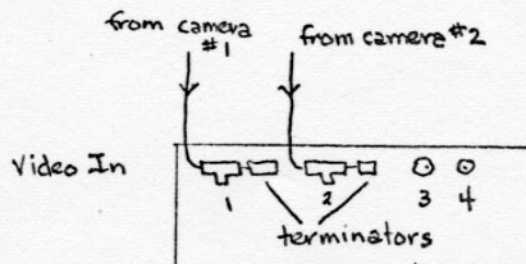
Key On/Off: turns on and off the keying function  
 Normal: key on light values  
 Reverse: key on dark values  
 Key Clip: adjusts darkness or lightness of key: if keying on black, clip adjusts key from black toward gray; if keying on white, clip adjusts key from white toward gray.  
 Key Clip Select: selects input which is key

- Assembly:**
1. bridge each Video In on SEG which is to be used.
  2. connect each UC-1 camera from Video Out on camera to one of the bridged Video In on the SEG  
 \*\*number 1 input on SEG must always be used.
  3. connect each UC-1 camera from external sync on camera to Sync Out on SEG
  4. set each camera on E t sync; plug in and turn power on.
  5. If you wish to monitor each camera:  
 for each camera connect other bridged Video In on SEG to one monitor  
 terminate each monitor: put switch on 75 ohm setting  
 see diagram  
 If you do not wish to monitor each camera:  
 for each Video In on SEG which is used, put terminator in the bridged Video In  
 see diagram
  6. connect Video Out on SEG to Video In on VTR
  7. connect Video Out on VTR to main monitor and terminate monitor

**Operation:** All functions under the SEG discussion are operational  
 To Key: push Wipe/Key button and put key switch on.



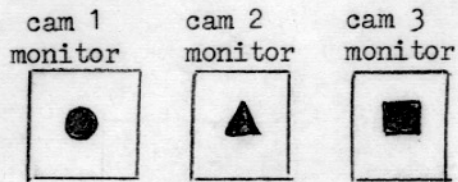
To monitor each camera



No cameras are monitored

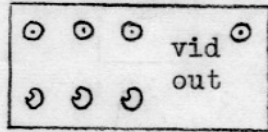


# monitors

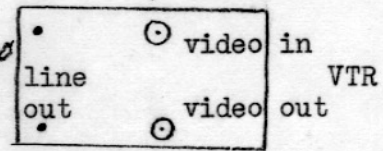


monitors  
cameras

SEG



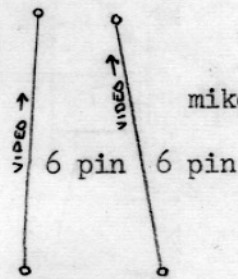
mic in



VTR

camera  
adapter

10 pin



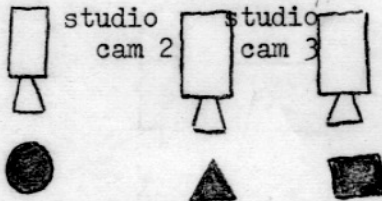
mike

Audio

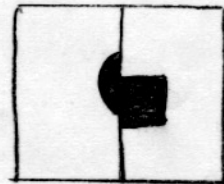
Audio

VIDEO

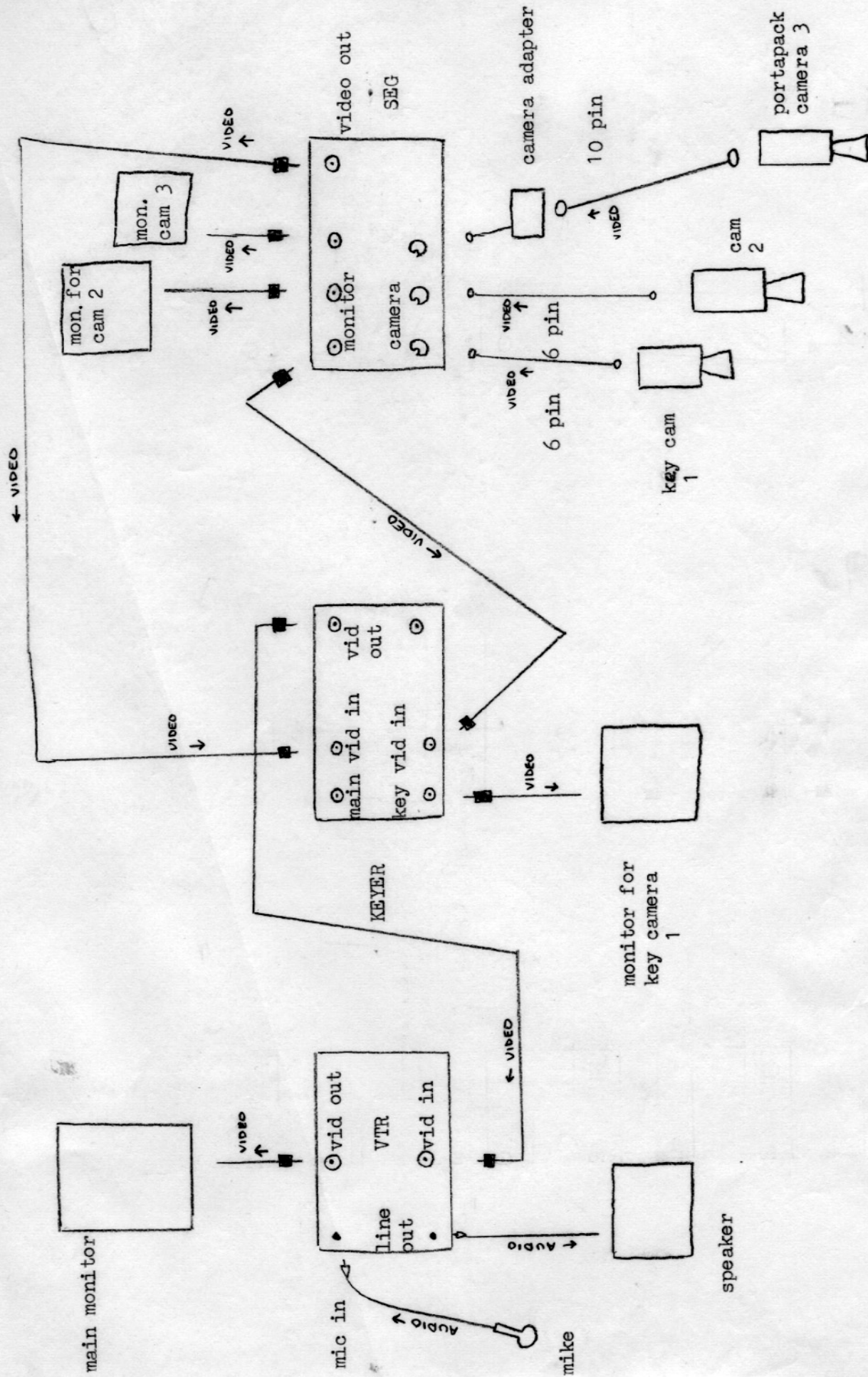
portapack  
camera 1



speaker



main monitor





## RECORDING

### AV-5000

1. Plug in deck, monitor and studio camera or Camera adapter if using portapack camera to 110 AC outlets.
2. Connect deck to monitor through TV or Video Out and Line out.
3. Connect camera to deck:
  - a. Studio Camera  
UHF coax from Video/RF on camera to Video In on deck  
Set camera on Int. Sync and Video  
Set deck on Line.  
  
6 pin cable from Ext. Sync on camera to Camera on deck.  
Set camera on EXT and Video  
Set deck on Cam.
  - b. Portapack Camera (Through Camera Adapter)  
Plug Camera Adapter (CMA) into 110 AC  
10 pin camera cable from portapack camera to 10 pin input on CMA  
6 pin from CMA into Camera Input on deck.  
Turn CMA on  
Set Deck on Camera
4. Connect Microphone to deck:  
To Mic In with mini plug
5. Thread Deck; make sure function lever is in Stop
6. Power:
  - a. Turn on monitor and camera or CMA
  - b. Push power button down.
  - c. Turn motor switch in back of deck  
Off until ready to tape.
7. Settings
  - a. use B/W
  - b. Line Input select: if using Video In  
Camera Input select: if using Camera input
8. To monitor
  - a. Push Record button down while function lever is in stop position and motor switch is off.

### Panasonic 3130

Plug in deck, monitor and studio camera to 110 AC outlet. A portapack camera cannot be used with the 3130.

Connect deck to monitor through TV or Video Out and Audio Out.

- a. Studio Camera  
UHF coax from Video/RF on camera to Camera on deck  
Set camera on Int. Sync and Video  
Set deck on Cam.

not applicable

- b. Not applicable.

4. Connect Microphone  
To Mic In with phone plug

7. Settings
  - a. use B/W
  - b. Camera select
  - c. Normal mode

## RECORDING (cont)

AV-5000

Panasonic 3130

### 9. Adjustments

Confirm that monitor has video,  
speaker has audio.  
Adjust camera

### 10. To Record:

Turn motor switch on in back of deck  
Hold down REC button and move function  
lever from stop to forward. Then release  
REC button.

### 11. Recording Levels:

#### a. Video Level

Level must be controlled during  
recording; keep needle in blue by  
turning video level dial.

#### b. Audio Level

Is no external control over audio  
level

12. If you stop recording in the middle of  
a tape and wish to begin taping again:
- Turn function lever from FWD to Stop.  
Record button will come up.
  - To record again proceed as above.  
There will be a visual disturbance where  
recording was stopped and restarted.

### 11. Recording Levels

#### a. Video Level

Select Video on Recording Level  
Meter Selector. Recording Level  
Meter will show video level.  
Control level with video level  
dial.

#### b. Audio Level

Select Audio on Recording Level  
Meter Selector. Recording Level  
Meter will show audio level now.  
Control level with Audio level  
dial.

Both must be metered and controlled  
during taping.

### 12.

- Turn Function lever to Stop
- Record button will come up
- Reset counter to 000
- Push down REC button and set up  
next shot
- When ready to begin recording  
Put deck on Assembly Edit mode  
Rewind tape at least 6 seconds;  
Usually 10 spaces on counter is  
adequate. Counter reads 990.
- Put function lever on Pause
- Move function lever to Play
- When counter reaches 000 or tape  
is approaching the original  
stopping point, depress EDIT  
You are recording.

This is an Editing Function and there  
should be no picture disturbance

- To stop recording, depress EDIT  
and wait until picture disappears  
from monitor before rewinding.



## RECORDING

### JVC FV-3500

1. Plug in deck, monitor and studio camera or Camera Adapter if using portapack camera to 110 AC outlets.
2. Connect deck to monitor through TV or Video Out and Audio Out.
3. Connect camera to deck:
  - a. Studio Camera  
UHF coax from Video/RF on camera to Video In on deck  
Set camera on INT. Sync and Video  
Set deck on Cam  
  
6 pin cable from Ext. Sync on camera to Cam on deck.  
Set camera on EXT and Video  
Set deck on cam.
  - b. Portapack Camera (Through Camera Adapter)  
Plug Camera Adapter (CMA) into 110 AC  
10 pin camera cable from portapack camera to 10 pin input on CMA  
6 pin from CMA into Cam input on deck  
Turn on CMA  
Set deck on Cam.
4. ~~Connect microphone to deck:~~  
To Mic with Mini connector
5. Thread deck; make sure function lever is in Stop.
6. Power:
  - a. Turn on monitor and camera or CMA
  - b. Push power button down
  - c. There is no motor switch on deck
7. Settings:
  - a. Set on B/W (mono)
  - b. Set on Cam
  - c. Set on Normal
8. To monitor before recording:  
When power button is down and camera connected to deck and deck to monitor, video will be displayed on monitor. You Do Not have to push down the Record button.

RECORDING (cont.)

JVC FV-3500

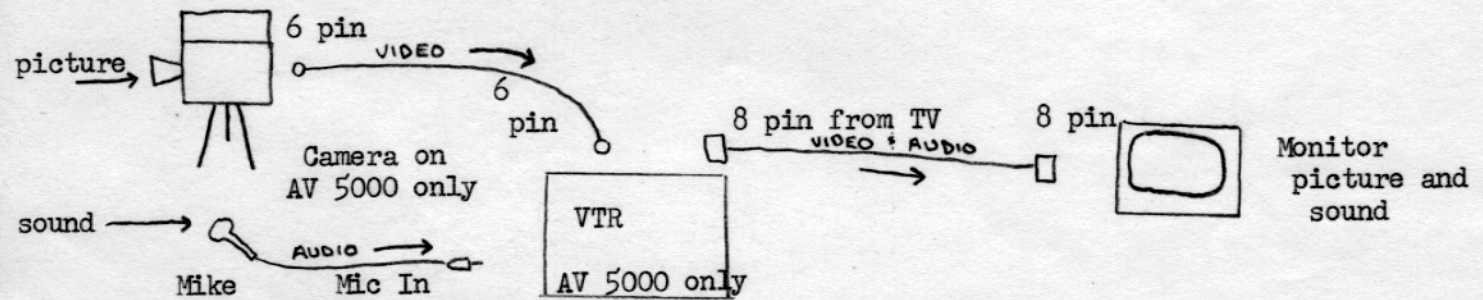
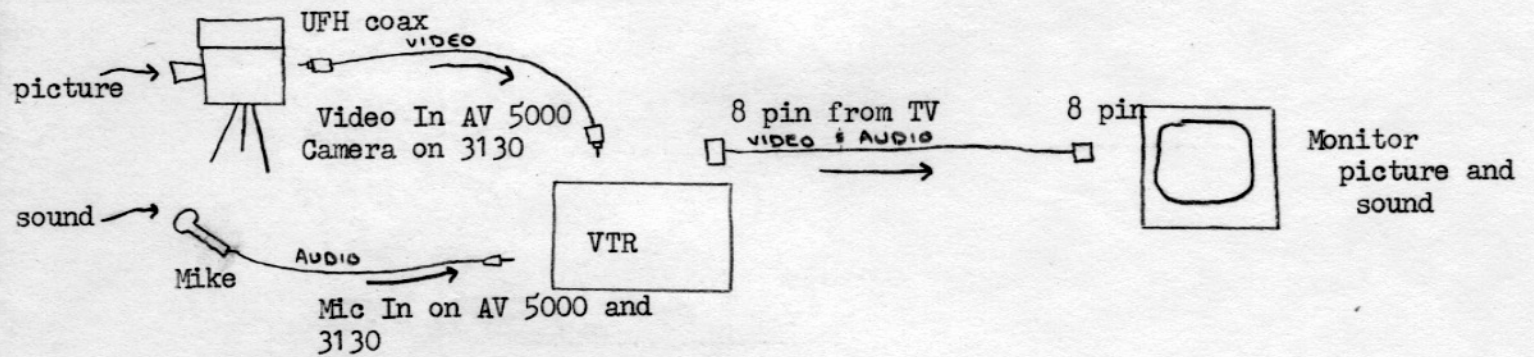
9. Make necessary adjustments; make sure monitor has video and speaker has audio. Adjust camera.
10. To Record:  
Hold DOWN Record button and move function lever from Stop to Play. Then release the Record button. It will remain down and light on throughout recording.
11. Recording Levels:  
Both video and audio levels are adjusted by the deck; operator has no control over levels.

12. If you stop recording in the middle of a tape ~~and wish to begin taping again:~~
  - a. Turn Function Lever from Play to Stop.  
Record button will come up and light will go off.
  - b. To record again proceed as above.

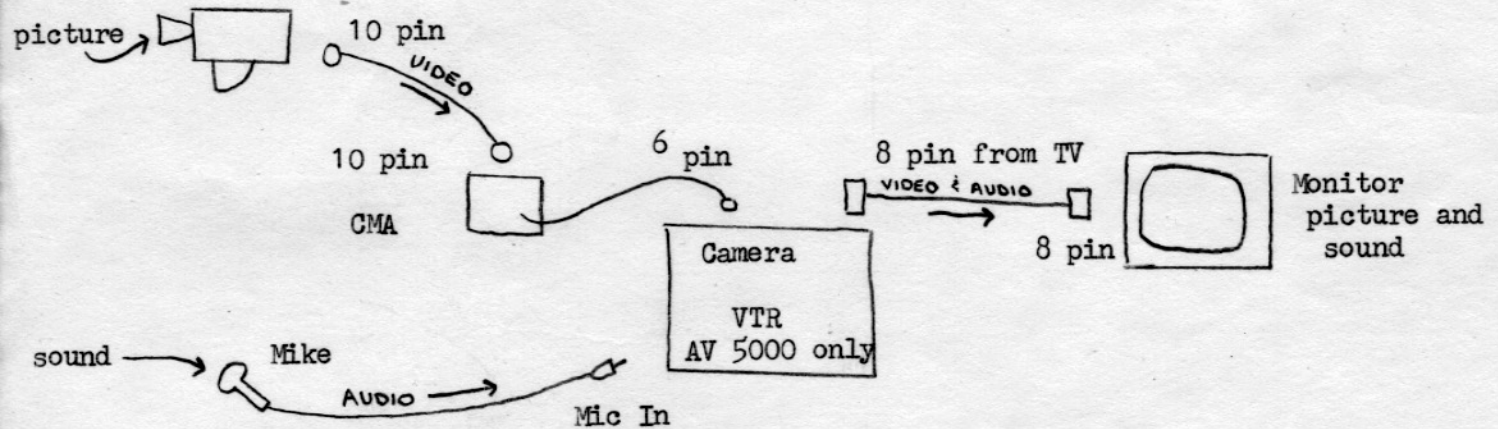
Use of the Edit function on this deck is not recommended, as picture stability is not assured.



### studio camera

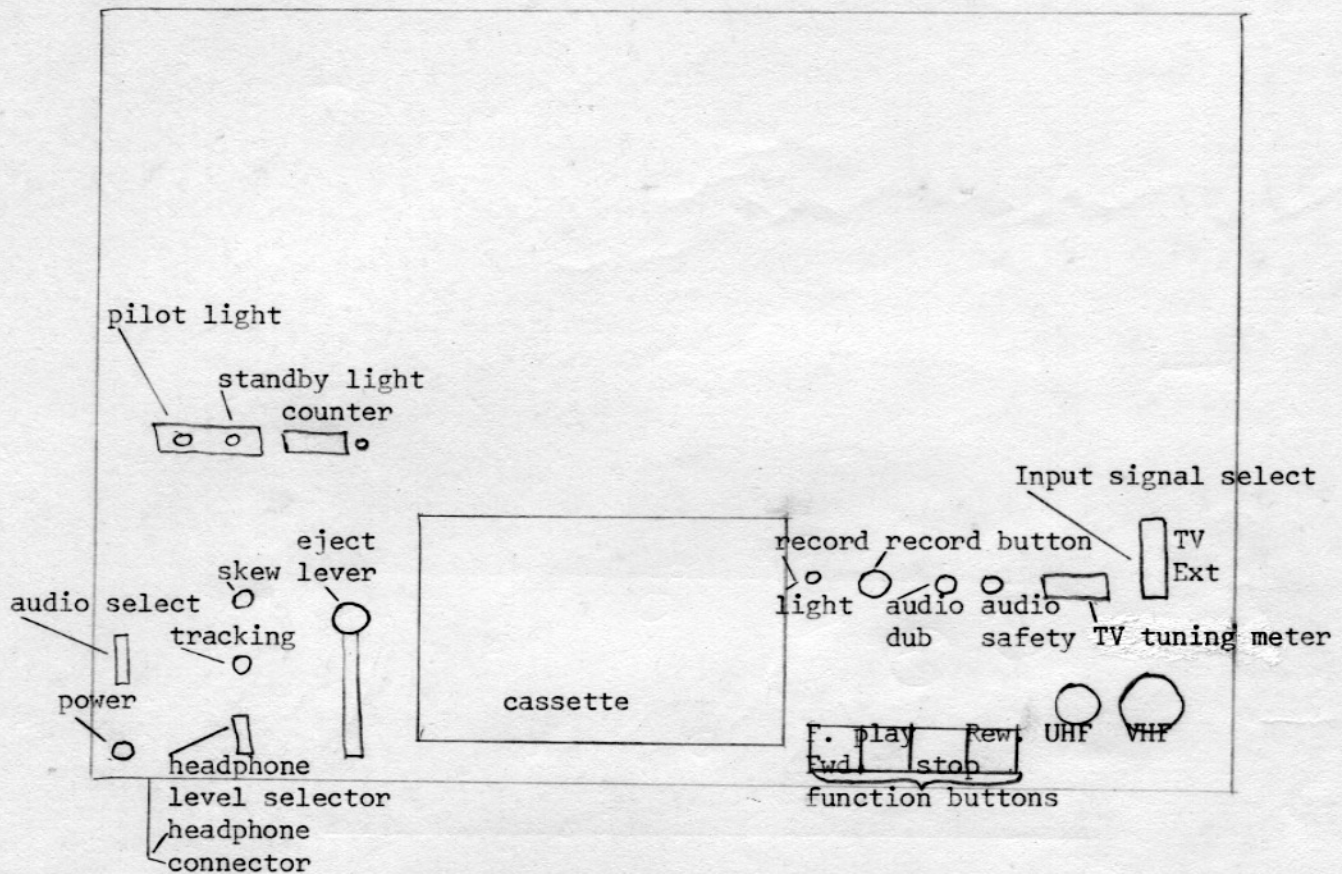


### portapack camera



SONY VO-1600

Top



Power  
Pilot Light  
Skew  
Tracking

Eject lever

Audio select

Headphone connector  
Headphone level select  
Input signal select

Turns deck on and off  
Lights when deck is on  
Adjusts skew on playback only. Turn to operate.  
Adjusts tracking on playback only. Pull up and turn to operate. Push down if recording.  
Permits insertion and removal of cassette. Pull down to raise cassette housing for insertion and removal. When cassette is inserted, it will drop down automatically and eject lever will return to upper position.  
1 - to hear sound from number 1 (L) audio track  
2 - to hear sound from number 2 (R) audio track  
mix - to hear sound from 1 and 2 mixed and played on mono sound system  
This is for playback on receiver: audio selector has no effect on audio signals at Line Out audio jacks.  
use stereo headphones with 8 ohm impedance  
1 - soft; 2 - loud  
selects source of video to be recorded



# Function buttons

Standby light

Record button

Record light

Audio dub

Audio safety

TV Tuning meter

VHF

UHF

TV - for recording off-air

EXT - for cameras and processing systems

selects mode

when lit, do not press any buttons

for recording, see recording with VO-1600

goes on during recording

for dubbing new audio onto prerecorded tape;

see Recording with VO-1600

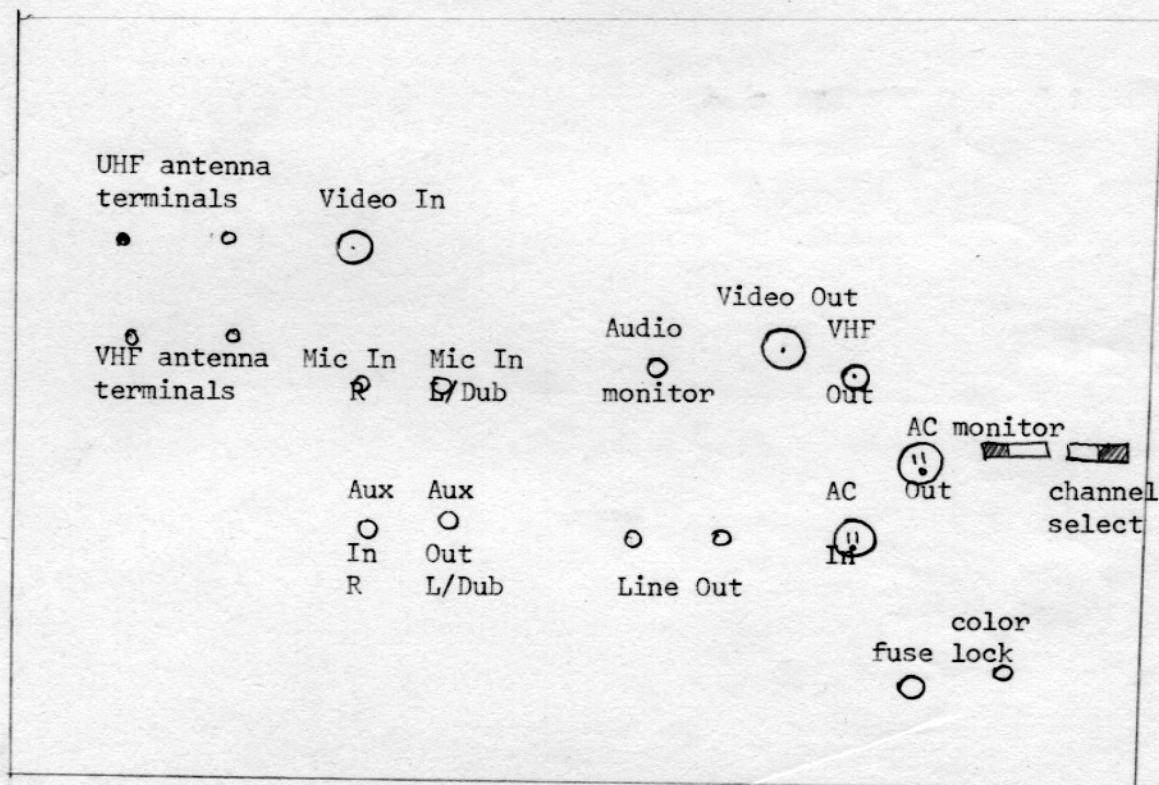
Used during audio dub

used for recording off-air

used for recording off-air

used for recording off-air

Back



UHF antenna terminals

connected directly to antennas for playback through receiver and recording off air

VHF antenna terminals

connected directly to antennas for playback through receiver and recording off air

Video In

video signal into deck with UHF connector

Video Out

video signal out of deck with UHF connector

Audio monitor

connects audio from deck to monitor

VHF out

connects to receiver for playback

3

Mic In	Right and Left channels for recording; Left is also used for dubbing
Aux In	Right and Left channels for recording; Left is also used for dubbing
Line Out	connected to stereo sound system for stereo audio playback
Monitor select	color or black and white
Channel select	for playback on receiver and recording off air
Color lock	adjusts color on playback



## Viewing A Tape

SONY: U-Matic Cassette (VO-1600)

Please follow these instructions exactly. Damage may result from improper use.

1. Plug in VO-1600, monitor and separate speaker if used to 110 AC
  2. A) Connect deck to monitor:
    1. Video Out from deck to Video In on monitor  
Set monitor selector to Color or Mono
    2. Line Out from deck to Audio In on speaker. If mono sound system used, either right or left line out can be connected, or Audio monitor may be connected to audio input of monitor.
  - B) Connect deck to receiver
    1. VHF out from deck to VHF antenna leads of receiver
    2. Tune receiver to channel 3 or 4  
Put Channel selector in back on 3 or 4
  3. Push power switch to turn VO-1600 on. The green light will go on.
  4. Pull eject lever toward you.  
Insert cassette as far in as it will go.  
Once in the cassette will drop by itself and eject lever will return to high point.
  5. Put deck on color or mono (B/W)
  6. Press PLAY button. Orange standby light will go on. After several seconds it will go out and playback will begin.
  7. At end of tape, machine will stop automatically.  
To stop tape in the middle, push STOP button.  
\* IMPORTANT: When Stop button hit, tape AUTOMATICALLY threads back into cassette. During this rewind process, the orange standby light goes ON. DO NOT do ANYTHING until this light goes out.
  8. To remove cassette:  
Wait until standby light goes OFF.  
Pull eject lever down.  
Remove cassette.
- Fast Forward:
- To fast forward a tape:  
Go to Stop position and wait until Standby light goes off.  
Press fast forward.  
Press Stop when tape reaches desired point.  
Wait until Standby Light goes off, then press Play.
- Rewind:
- To rewind:  
Go to Stop position and wait until Standby light goes off.  
Press rewind.  
Press Stop when tape reaches desired point.  
Wait until Standby light goes off.
- Skew control
- Turn to adjust.  
Returns automatically to center when Record button pressed.

Tracking:

Pull straight up and turn for adjustment.

Return to original position by pushing down before recording.

Color lock:

May help to maintain proper hues on playback.

Pull out and rotate slowly until colors are correct.

Push in when finished viewing this tape.

Always rewind cassette completely after use.

DO NOT turn off power when standby light is on.



## Recording

### SONY Cassette VO-1600

Please follow these instructions exactly. Damage may result from improper use.

1. Read carefully the instructions for viewing a tape.  
Follow instructions 1 and 2.
2. Connect video source to deck:  
With synthesizer: Line out to Video In of deck
3. Connect audio source to deck.  
Microphones: to Mic Inputs of deck  
Other sources, for example tape recorder or record player: to Aux Inputs.
4. Put Input signal selector to External.
5. Follow instructions 3 and 4 on 'Viewing a Tape'.
6. Press Record button. Monitor should display image.
7. Hold Rec button down and press Play.  
Standby light will go on; when it goes off recording begins.
8. Push Stop at end.  
To view: follow instructions for Viewing a Tape.

#### Audio dubbing:

Connect VO-1600

In dub mode recording is on Number 1 (Left) track Only.

Connect sound source to either Mic In L/Dub or Aux In L/Dub.

At point when new audio is to be inserted press Audio Safety button.

Then press Audio dub button.